

What is claimed is:

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1. A transport assembly for moving a first cartridge and a second
2 cartridge between a storage rack and a tape drive, the tape drive including a
cartridge receiver, the transport assembly comprising:
 - 4 a transporter including a first transport receiver adapted to receive
the first cartridge and a second transport receiver adapted to receive the
6 second cartridge; and
a transport mover for moving the transporter relative to the
8 storage rack and the tape drive.
 2. The transport assembly of claim 1 further including a cartridge
2 mover that moves the first cartridge between the storage rack and the first
transport receiver.
 3. The transport assembly of claim 2 wherein the cartridge mover
2 includes a first gripper assembly.
 4. The transport assembly of claim 3 wherein the cartridge mover
2 includes a first gripper mover for moving the first gripper assembly in a first
direction relative to one of the cartridges.
 5. The transport assembly of claim 4 wherein the cartridge mover
2 includes a second gripper mover for moving the gripper assembly in second
direction relative to one of the cartridges that is substantially perpendicular to
4 the first direction.
 6. The transport assembly of claim 5 wherein the cartridge mover
2 includes a second gripper assembly.
 7. The transport assembly of claim 2 wherein the cartridge mover
2 includes a pass-through assembly.

2 8. The transport assembly of claim 1 further including a guide that
4 extends substantially between the storage rack and the tape drive; wherein the
transport mover moves the transporter between the storage rack and the tape
drive along the guide.

2 9. The transport assembly of claim 1 wherein the transport mover
moves the transporter between the storage rack and the tape drive.

2 10. The transport assembly of claim 1 wherein the transport mover
moves the transporter side-to-side to alternately position each of the transport
receivers near the cartridge receiver of the tape drive.

2 11. The transport assembly of claim 1 wherein the transporter has an
axis of rotation, and wherein the transport mover rotates the transporter around
the axis of rotation.

2 12. A storage system including a storage rack, a tape drive and the
transport assembly of claim 1 that is positioned near the storage rack and the
tape drive.

2 13. The storage system of claim 12 wherein the storage rack includes
a plurality of tape receivers and a transporter sensor, the transporter sensor
sensing when the transporter is positioned near the desired tape receiver.

2 14. A storage system for use with a first cartridge and a second
cartridge, the storage system comprising:
4 a system housing;
a storage rack secured to the system housing;
a tape drive secured to the system housing; and

6 a transport assembly coupled to the system housing, the
transport assembly including (i) a guide which extends substantially
8 between the storage rack and the tape drive, (ii) a transporter including a
first transport receiver that receives the first cartridge and a second
10 transport receiver that receives the second cartridge, (iii) a transport
mover that moves the transporter along the guide, the transport mover,
12 and (iv) a cartridge mover for moving cartridges between the storage
rack, the transport receivers and the tape drive.

15. The storage system of claim 14 wherein the transport mover
2 moves the transporter long an X axis and along a Y axis.

16. The storage system of claim 15 wherein the transport mover
2 rotates the transporter about a Z axis.

17. A method for transporting a first cartridge and a second cartridge
2 between a storage rack and a tape drive, the method comprising the steps of:
providing a transporter including a first transport receiver and a
4 second transport receiver, each transport receiver being adapted to
receive one of the cartridges;
6 transferring the first cartridge into the first transport receiver;
positioning the second transport receiver near the tape drive;
8 transferring the second cartridge from the tape drive to the
second transport receiver;
10 positioning the first transport receiver near the tape drive; and
transferring the first cartridge from the first transport receiver into
12 the tape drive.

18. The method of claim 17 further comprising the steps of (i)
2 positioning the transporter near the storage rack, and (ii) transferring the
second cartridge from the second transport receiver into the storage rack.

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19. The method of claim 18 further comprising the steps of (i)
2 transferring a third cartridge into the second transport receiver, and (ii)
positioning the transporter near the tape drive in preparation for transferring the
4 first cartridge from the tape drive to the first transport receiver.

20. A method for moving a first cartridge from a tape drive to a
2 storage rack and for moving a second cartridge from the storage rack to the
tape drive, comprising the steps of:

4 providing a transporter having a first transport receiver and a
second transport receiver, each transport receiver being adapted to
6 separately receive one of the cartridges;

8 translating and positioning the transporter adjacent a tape
receiver of the storage rack so that the second transport receiver is
aligned to receive the second cartridge;

10 transferring the second cartridge from the storage rack to the
second transport receiver; 18A

12 translating and positioning the transporter adjacent to a cartridge
receiver of the tape drive to receive the first cartridge;

14 transferring the first cartridge from the cartridge receiver to the
first transport receiver; 18B

16 laterally shifting the position of the transporter so that the second
transport receiver becomes aligned with the cartridge receiver of the
18 tape drive; and

20 transferring the second cartridge from the second transport
receiver to the cartridge receiver of the tape drive.

21. The method of claim 20 further comprising the step of providing
2 the first cartridge and the second cartridge, each of which are single-reel
magnetic tape cartridges.

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